



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,001	10/29/2003	Nobuhiro Nishiyama	204552030600	5307

25227 7590 10/06/2005
MORRISON & FOERSTER LLP
1650 TYSONS BOULEVARD
SUITE 300
MCLEAN, VA 22102

EXAMINER

UNELUS, ERNEST

ART UNIT	PAPER NUMBER
----------	--------------

2828

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

24

Office Action Summary	Application No.		Applicant(s)	
	10/695,001		NISHIYAMA ET AL.	
	Examiner		Art Unit	
	Ernest Unelus		2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/29/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/29/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5, 8, 13, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Tajiri et al. (5,727,009).

With respect to claim 1, Tajiri discloses a semiconductor laser assembly comprising: a substrate including a first mount surface and a second mount surface; a submount (3) mounted on the first mount surface of the substrate (2); a laser diode (4) mounted on the submount (3) and having at least one light emission point (see figure 2). In regard to the electrode, Tajiri discloses the submount (3) and an electrode (see figure 4); and a monitoring photodiode (5) mounted on the second mount surface of the substrate and having a light-receiving surface which receives light emitted from the light emission point (see figure 2), and a relay electrode connected to the electrode of the laser diode by a metal wire (see figure 4).

With respect to claim 4, Tajiri discloses that the light-receiving surface of the monitoring photodiode (5) located approximately at the same height as or lower than the light emission point of the laser diode (see figure 2).

With respect to claim 5, Tajiri discloses the first and second mount surfaces of the substrate and a laser diode mount surface of the submount are approximately parallel to one another (see figure 2).

With respect to claim 8, Tajiri discloses the submount (3) having a length in a direction of an optical axis of the laser diode that is approximately equal to a resonator length of the laser diode (see figure 2).

With respect to claim 13, Tajiri disclose a substrate composed of metal lead (53) (see figure 21).

With respect to claim 14, Tajiri discloses the relay electrode connected to an electrode (10-18) on the substrate by a metal wire (see figure 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (5,727,009) in view of Wang (6,574,254).

With respect to claim 2, Tajiri disclose a semiconductor laser device without specifically disclosing a height of the first mount surface in a direction normal to an upper surface of substrate is higher than that of the second mount surface. A height of the first mount surface in a direction normal to an upper surface of substrate is higher than that of the second mount surface is well taught by Wang (see figure 6). It would have been obvious to one of ordinary skill to combine the height in the first mount surface to effectively increase heat conductivity generated in the substrate and to prevent destruction of the photodiode.

With respect to claim 3, Tajiri discloses a semiconductor laser device without specifically disclosing the metal wire being disposed approximately consistent with an optical axis of the laser diode. The metal wire being disposed approximately consistent with an optical axis of the laser diode is well taught by Wang (see figure 5). It would have been obvious to one of ordinary skill to include metal wire being disposed approximately consistent with an optical axis of the laser diode to increase heat conductivity.

Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (5,727,009) in view of Jiang (6,115,398).

With respect to claim 6, Tajiri discloses a semiconductor laser device without specifically disclosing the laser diode mount surface of the submount is approximately at the same height as the light-receiving surface of the monitoring photodiode. Jiang discloses a laser device where the laser diode mount surface of the submount is approximately at the same height as the light-receiving surface of the monitoring photodiode (see figure 1). It would have been obvious to one of ordinary skill in the art to place the laser diode mount surface of the submount to be approximately the same height as the light-receiving surface of the monitoring photodiode so that light emitted from the light emission point of the laser diode can easily be made incident on the light receiving surface.

With respect to claim 10, Tajiri discloses a semiconductor laser device without specifically disclosing the laser diode having a plurality of light emission points. The laser diode having a plurality of light emission points is taught by Jiang (see figure 1). It would have been obvious to one of ordinary skill to use or include a laser diode having a plurality of light emission points to maintained a fix or consistent power output from the laser.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (5,727,009)

With respect to claim 7, Tajiri discloses a semiconductor laser device with a submount made of an insulating material having heat conductivity (col. 11, lines 61-65). Tajiri fails to specifically disclose the submount made of an insulating material having

higher heat conductivity than the monitoring photodiode. However, it would have been obvious to one of ordinary skill in the art to realize that a submount made of an insulating material to have higher heat conductivity than the monitoring photodiode because heat is generated in the submount, which is below the monitoring photodiode, and flows to other parts of the laser device; a higher heat conductivity enables prevention of thermal destruction of the photodiode.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (5,727,009) in view of Shiimoto et al. (6,456,635).

With respect to claim 9, Tajiri discloses a semiconductor laser device without specifically disclosing at least one additional laser diode mounted on the submount, said additional laser diode also has at least one light emission point and an electrode, and the monitoring photodiode is provided with an additional relay electrode connected to the electrode additional laser diode by a metal wire. Shiimoto teaches the semiconductor laser device having at least one additional laser diode mounted on the submount, said additional laser diode also has at least one light emission point and an electrode (col. 10, lines 37-67) (see figures 3a and 3b). Shiimoto also discloses the monitoring photodiode provided with an additional relay electrode connected to the electrode additional laser diode by a metal wire (col.8, lines 65-67). It would have been obvious to one of ordinary skill in the art to combine the two references above because a two laser diode device allow the optical pickup to read information from and write information to different types of optical discs.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (5,727,009) in view of Deacon (US 2003/0210718).

With respect to claim 11, Tajiri discloses a semiconductor laser device with a laser diode mounted on a heat sink (3) on a substrate without specifically disclosing the laser diode mounted on the submount through two separated metal layers in a junction-down manner. However, Deacon disclose a heat sink on two metal layers (17 and 25) separated by a planar member (27) (see figure 1). It would have been obvious to one of ordinary skill in the art to disclose the laser diode mounted on the submount through two separated metal layers to reduce restriction of the light beam from the laser diode to the photodiode and to increase heat conductivity in the submount. In regards to the junction down manner, neither Tajiri nor Deacon discloses it specifically. Since junction down manner is to have a layer or layers on a substrate, then the limitation is inherently met.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (5,727,009) in view of Deacon (US 2003/0210718) and further in view of Yoshida et al. (5,359,619)

With respect to claim 12, Tajiri and Deacon teach all elements of the claim inventions above. Tajiri and Miyajima fail to specifically disclose a laser diode with two light emission points from which the laser diode emits laser beams with different wavelengths, and electric power supplied the laser diode through each of the metal layers, independently of each other so that the two light emission points are controlled

independently. A laser diode with two light emission points from which the laser diode emits laser beams with different wavelengths, and electric power supplied the laser diode through each of the metal layers, independently of each other so that the two light emission points are controlled independently is well taught by Yoshida (col. 2, lines 32-37). It would have been obvious to one of ordinary skill in the art to use a laser diode with two light emission points, independently of each other on a single substrate, to attain a system being able to print and transfer data at high speed at the same time.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ijuin et al. (US Pat. 6,185,239) discloses a laser device with a substrate and a photodetector without specifically disclosing the laser diode having two emission points.

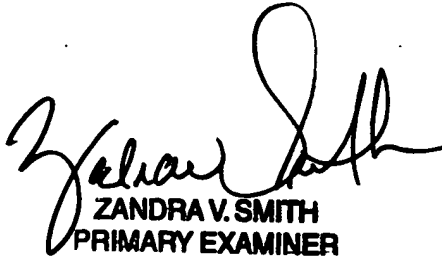
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is 571-272-0218. The examiner can normally be reached on 9:00am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Art Unit: 2828

Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



ZANDRA V. SMITH
PRIMARY EXAMINER

E.U